**July 2004**

# Redesigning Long-Term Care Systems Through Integrated Information Systems

## Final Report

Prepared for

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# REDESIGNING LONG-TERM CARE SYSTEMS THROUGH INTEGRATED INFORMATION SYSTEMS


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Contract No. 282-98-0022

July 2004

This project was funded by the Administration on Aging under contract no. 282-98-0022. The statements contained in this report are solely those of the authors and do not necessarily reflect the views or policies of the Administration on Aging or RTI International. RTI assumes responsibility for the accuracy and completeness of the information contained in this report.


*RTI International is a trade name of Research Triangle Institute.

## ACKNOWLEDGEMENTS

The authors wish to thank the many people who provided us with information about integrated information systems in Atlanta, Georgia and Indiana. This study is one of a series of five reports on the role of the National Aging Services Network in improving home and community-based options for older people. Financial support for this project is provided by the U.S. Administration on Aging, U.S. Department of Health and Human Services, Contract Number 282-98-0022, T.O. 19. Melanie Starns, the project officer, made numerous helpful recommendations throughout the project. Barbara Gage of RTI International is the project director. RTI International staff contributing to these reports include: Barbara Gage, Galina Khatutsky, Deborah Osber, Amber Moore and Joshua Wiener. We gratefully thank the numerous state officials, Area Agency on Aging staff, providers and consumer advocates who gave so generously of their time to speak with us about home and community-based services in their states and communities and to review draft reports. This project would not have been possible without their help. The views expressed in these reports are those of the authors and should not be attributed to, or considered official policy of the Administration on Aging or RTI International.

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## INTRODUCTION: REDESIGNING LONG-TERM CARE SYSTEMS THROUGH INTEGRATED INFORMATION SYSTEMS

The National Aging Services Network has played a key role in integrating information about community services, including health, social support, educational, and recreational services, resources, and funding streams. Area Agencies on Aging are known as the community resource to provide information and assistance to older Americans. Their methods for meeting this mandate range widely from providing pre-printed lists of providers in the community to conducting sophisticated electronic searches for a wide range of services that account for an individual's personal constraints, whether those be fiscal, functional, social, or geographic. Many Area Agencies on Aging have built on this mandate to provide information and have developed electronic systems that allow different types of users to find the information needed to help a senior resident remain in the community.

This study highlights two of these electronic systems – one in Atlanta, Georgia, and the other in the state of Indiana. Both systems have computerized databases that include information on both the client and the resources in the community. Both also allow the user to identify a wide range of services, regardless of whether they would be purchased privately or through publicly funded community-based programs. And both states use these electronic systems to manage access to Medicaid services (both state plan and waiver programs), state-funded home care services, and other public services, including those funded by the Older Americans Act, Social Service Block Grant, and Adult Protective Services. Georgia's locally funded programs are also included in these databases.

The databases differ in how they are used and who uses them in each state. Georgia developed a system that could be used by the Area Agencies on Aging to search for different types of providers and other local community resources. It was created to meet a local need for information and expanded to a statewide service used by all Area Agencies on Aging in Georgia.[1] It also grew to include client assessment information, including screening protocols which identify a comprehensive range of unmet needs and ensure that each caller is screened for adult protective services and other needs besides the one for which the call was placed.

This system is maintained, updated, and technical assistance is provided by each local Area Agency on Aging (AAA). These AAAs charge subscription fees and maintenance fees to

[1] Other states have since adopted the system.

users (other than their contracting agencies) allowing hospitals, faith-based organizations, employers, and others in the aging network to use this system and help support it financially. In addition, this ensures that all members of the aging network have up-to-date information they can use to assist the seniors before they reach the AAA. All seniors seeking publicly funded services, however, still need to go through the AAA.

Indiana's system began as a state-level initiative. It was intended to manage the data needed to administer its newly consolidated In-Home Services programs in the early 1990s and is currently in its second generation of development. This electronic system is designed as a program management/case management tool and has many of the same types of features as Atlanta's system. It is used to collect client information on functional assessment, screening for eligibility in state and Medicaid funded community-based services, and listings of certified providers. Unlike Atlanta's system, Indiana's was not designed to be used for extensive information and assistance so the range of providers in this system is more focused on those certified to participate in public programs, rather than other types of community resources which are also included in Atlanta's system.

Indiana's system is, however, designed to manage provider billing, review care plan authorizations prior to payment, and submit bills for the state-funded programs to the state – something that Atlanta's system is not designed to do.

The users in both Atlanta and Indiana are case managers who are mostly employed by Area Agencies on Aging, although Indiana's AAAs also refer some Medicaid clients to private case managers who also use the system. These are but two examples of the many different types of information systems being used by the Aging Network to increase access to community options and integrate a variety of sources of information and resources.

## GEORGIA'S INTEGRATED INFORMATION SYSTEM: AGING CONNECTION AND AGING CONNECTION PLUS

This case study highlights the electronic information system developed by the Atlanta region's Area Agency on Aging, the Atlanta Regional Commission (ARC). ARC designed an innovative database, marketed it to the local community network, and developed public-private partnerships to create an integrated information system that couples a comprehensive, community resource database with person–level assessment data. Building on the information and assistance directives in the Older American's Act, ARC contracted with CyberPath, Inc. to develop two software programs which are used by the Georgia AAAs and service providers under contract with ARC. The Elder Services Program (ESP) manages their information and referral services and the Client Health Assessment Tool (CHAT) is used for intake, screening, and case management. The ESP component stores information on thousands of aging and long-term care resources and is available through a subscription fee to both public and private organizations. Other states have purchased both the software and technical assistance services to develop similar information systems in their states. Most recently, ARC has developed AgeWise Connection, a web-based option for consumers to access this information.

The first section of this report provides a brief overview of Georgia's long-term care (LTC) system and explains the context in which ARC's integrated data system operates. The second section focuses on the innovation - an extensive information and data management system used by the AAAs, providers, seniors, and others in the Aging Network to identify local resources and manage client cases. Last, we present information on Georgia's keys to success – information that other states and Area Agencies on Aging (AAAs) need to know to replicate this type of effort in their area.

The information in this case study was collected by Research Triangle Institute's (RTI) under contract to the Administration of Aging. Site visits to Atlanta were conducted in July 2003.

## 1-I. OVERVIEW OF LONG-TERM CARE IN GEORGIA

### *A. Demographics*

Georgia has a rapidly expanding elderly population. They rank tenth in the nation for the number of people 60 years or older (Georgia state plan, 2004). Their oldest populations (85 years or older) grew 53 percent between 1990 and 2000, 39 percent more than the nation as a whole. The state also has a quickly aging 55-64 year old population that will soon be qualifying for senior services (33 percent growth between 1990 and 2000, over the twice the national rate). Georgia's senior population also reports a high disability level with almost half of those 65 years and older reporting a disability (47.5 percent). Further, a substantial number of the elderly are low-income populations. One fourth of Georgia's elderly live alone and have incomes below $10,000/year.

### *B. Long-Term Care Financing*

Long-term care in Georgia is financed through several funding streams. Medicaid is a major player accounting for $835.7 million in nursing facility payments, $261.3 million from Medicaid home and community-based waivers and 1115 demonstration waivers, $173 million for targeted case management, and $23,451,520 in Older American Act funds (OAA) in 2002 (Burwell and Eiken, et al., 2003; Georgia state plan, 2004). State and county governments contribute a large share of the aging services funding.

### *C. Long-Term Care System and the Aging Network*

The Georgia Aging Network consists of the Division of Aging Services (DAS) within the state Department of Human Resources (DHR), 12 Area Agencies on Aging, local governments, the GA Council on Aging and many advocacy and provider organizations. The Area Agencies on Aging serve as a single entry point for most community-based services for older adults, including those funded by the:

- Older Americans Act (OAA),
- Social Services Block Grant (SSBG),
- Community Care Services Program (CCSP), which is the state's largest Medicaid Waiver,
- State-funded Home and Community-Based Services Program, and
- Other state and local programs.

In addition, several AAAs administer and/or screen and refer those eligible for the SOURCE program, a small Medicaid waiver program in Georgia. Area Agencies contract with local governments and providers to deliver direct services and monitor performance and quality of all funded programs.

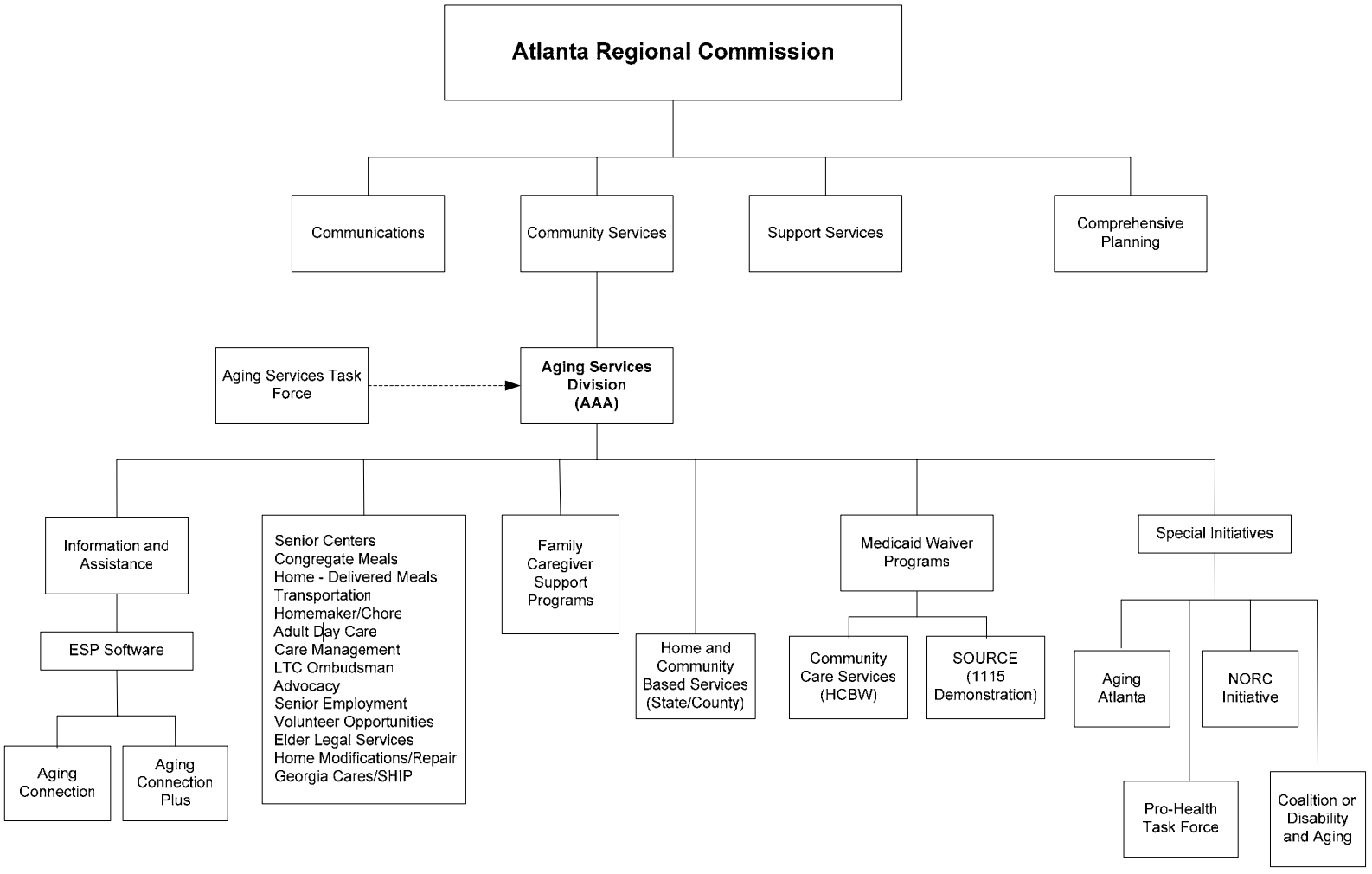
The Atlanta Regional Commission (ARC) serves as the AAA for the Atlanta area (***Figure 1-1***). ARC is a regional planning and intergovernmental coordination agency for the 10-county area which includes the City of Atlanta. ARC was designated an Area Agency on Aging in 1974 and has led Georgia's effort to develop information innovations such as those highlighted in this case study. Counties play an important role in Atlanta's aging service system. In the Atlanta region, ARC contracts with nine of ten county governments to run local aging programs. Each county leverages additional funding to supplement the ARC dollars. In fact, a number of the counties receive more than half their funding from county government. ARC allocates money to the counties using the same formula the state uses to distribute Federal and State Older Americans Act dollars to the AAAs.

ARC and the other Area Agencies on Aging offer a core set of statewide programs as well as various local initiatives specific to each area. The core programs include Older Americans Act services, such as information and assistance, senior centers, congregate and home delivered meals, transportation, in home services, and family caregiving services. In addition, the AAAs provide access to Georgia's community-based long-term care programs including:

1. Home and Community-Based Services (HCBS) Program: This state and county funded program provides case management, homemaker services, transportation, nutrition services, adult day care and respite services to seniors who do not qualify for Medicaid but who need support to continue living in their own homes. The range of services is similar to the Medicaid CCSP Program but service level and case management reimbursements are generally lower than the Medicaid Waiver program. All seniors aged 60 and over are eligible; people with the greatest need receive services first.

2. Community Care Services Program (CCSP): This Medicaid-funded HCB waiver program is the state's largest home and community-based program. Seniors must have a nursing home level of need to qualify. DHR contracts with ARC and other AAAs to manage CCSP on the local level, serve as the central intake point, screen applicants and provide or contract for care coordination. In state fiscal year 2003 this program served over 16,000 people throughout the state with an average cost of about $5,000 per client.

**Figure 1-1**
**Atlanta Regional Commission Programs**




* Bold = manage the database

The program uses interdisciplinary teams with registered nurses for initial assessments and offers the following services:

- Comprehensive primary medical care
- Adult day health program
- Alternative living services (24 hour support and services in licensed personal care homes)
- Enhanced case management
- Emergency response system
- Home delivered meals
- Home health services (including skilled nursing)
- Personal care services
- Respite care
- Transportation

3. Service Options Using Community Environments (SOURCE): a small Medicaid 1115 demonstration waiver program that is managed by the Department of Community Health (DCH) and administered by two AAAs. The SOURCE program provides intense case management for Medicaid acute and long-term care services to those at imminent risk of institutionalization. To be eligible, the individual must qualify for Supplemental Security Income, be 65 or older (or disabled) and have a chronic condition that has been present for at least three months. Every program participant is assigned to a primary care physician and has a care plan that is reviewed quarterly by them and the program case managers.

ARC also manages special initiatives, such as the Aging Atlanta collaborative which is funded in part by the Robert Wood Johnson Foundation to develop community partnerships and the NORC initiative in which they are partnering with the Jewish Federation to help manage the region's Naturally Occurring Retirement Communities. In addition, ARC is working closely with the Coalition on Disability and Aging to address issues common to both populations. Many of ARC's special initiatives are focused on integrating services and delivery systems through technology.

The Aging Atlanta project created a community collaboration among 27 organizations in the Atlanta area, including groups like AARP, United Way, county governments, Chambers of Commerce, the business communities, the media, universities, and providers such as hospitals, local senior centers, social service organizations and home health agencies, to increase access and improve service coordination for older adults. In addition to a comprehensive public awareness campaign, this group works together to coordinate care across various providers and to help redesign communities to facilitate aging in place.

As part of this effort, Aging Atlanta developed a web-based tool, "Care Options," which allows providers to communicate and coordinate services across organizations, systems and disciplines. When client services change in a way that may affect another provider, or a critical event such as a hospitalization occurs, this information is entered into the system and can be accessed by all providers who have responsibilities for the client. In addition, the Care Options allows virtual case conferences among providers.

Another special initiative is the ProHealth Seniors Task Force which is a collaboration between the ARC Aging Division, the Georgia Division of Public Health, and other health and social service agencies. This community health promotion program meets semi-annually to share information on aging and health issues. Subcommittees meet throughout the year to work on health promotion, mental health for seniors, foot care, multicultural issues for underserved populations, and other special issues. ARC also manages a refugee "elderlink" program and a senior employment program. Both of these programs also rely on AAA's technology to identify services, and provide information on employment opportunities.

ARC also uses its technology to promote public-private partnerships and raise funds from local businesses. One of these initiatives is the Eldercare Consultant and Referral Service which provides telephone consultation and referral, employee seminars, and information fairs to local business using the information in ARC's electronic provider database. Other initiatives include the *Metropolitan Partnership in Aging*, a special outreach to local businesses; the *Thanks Mom and Dad Fund*, where people can contribute donations to home and community services in honor of their parents; senior expos, business partnerships and the *Feed the Body, Feed the Mind* program, a collaborative effort with the Atlanta Journal Constitution to provide daily newspapers with home delivered meals.

These collaborations, in part, have resulted in expanding the CONNECT database to include a disability and a mental health component and an even greater use of the information system.

## 1-II. INNOVATION OVERVIEW: AGEWISE CONNECTION - YOUR GATEWAY TO THE COMMUNITY'S RESOURCES

### *A. System Description*

As part of its effort to coordinate senior services for older adults and caregivers, ARC developed an integrated data system that they and others use to:

- Provide up-to-date information on a wide range of providers, services and senior issues in Georgia,
- Track client information on incoming calls and referrals made by AAAs, and
- Maintain screening and case management information for clients referred to publicly funded services, such as the community-based services supported by the state and Medicaid programs. This establishes one intake and case management record which can be accessed from multiple sites.

The information system is based on two software programs, the Elder Services Program (ESP) which manages the information and referral system and the Client Health Assessment Tool (CHAT) which is used in the public case management programs.

**1. Elder Services Program (ESP).** The ESP software manages both the provider and client information for the AAA's information and referral system. It can be customized to meet local requirements. Detailed search capabilities allow clients to be matched with services that meet specific individual needs. It has two components - a provider resource directory and an Information & Assistance function.

***a. Provider Resource Directory***: The aging and long-term care database, referred to as CONNECT, uses a two-tiered Aging and Long-Term Care Taxonomy of categories and services to catalog detailed information on providers across the state (***Figure 1-2***). In addition to the categories and service types, one can search by cost, type of payment accepted, hours of operation, category specific details and proximity to client. These detailed search and match capabilities allow individuals to search for something as specific as a home delivered meal program that accepts private and public payment sources and provides frozen meals on weekdays (***Figure 1-3***). CONNECT also allows the information specialist to map out selected service options and their proximity to the client's residence (***Figure 1-4***).

In order to facilitate these searches, different information is collected for each service category. For example, the type of data entered for adult day care centers is different from that collected for transportation services. In developing the taxonomy, ARC solicited advice from each type of organization to identify key features.

The database provides specific detailed information on each provider in the system, including information about capacity, costs, payment source, location, accessibility, languages spoken at each facility, and hours of operation. Latitude and longitude information is entered so the location can be mapped. The provider screens also include a referral history section which

## Figure 1-2
## Aging and Long-Term Care Taxonomy
## Sample of Alphabetical Listings

**PRIMARY CATEGORIES**

**Adult Day Care**
**Advocacy Assistance**
**Care Management**
**Community Care**
**Consumer Services**
**Developmental Disabilities**
**Educational Programs**
**Elder Abuse/Neglect**
**Emergency Management**
**Emergency Response Systems**
**Employment Services**
**Financial Assistance**
**Financial Services**
**Geriatric Assessment**
**Health Centers/Clinics**
**Health Conditions/Disease**
**Health Supportive Products**
**Healthcare Hospitals**
**Healthcare Transitional Facilities**
**Home Based Services**
**Home Care Providers**
**Home Health Agencies**
**Hospice Care**
**Housing Options**
**Housing Services**
**Income Security**
**Information/Referral**
**Insurance Programs**
**Insurance/HMO**
**Legal Services**
**Leisure/Recreational**
**Medicaid Waiver Programs**
**Mental Health**
**Nursing Homes**
**Nutrition Services**
**Organizations Associations**
**Personal Care Homes**
**Prescription Programs**
**Support Groups**
**Supportive Services**
**Transportation Assistance**
**Veterinarian Services:**
**Volunteer Services**
**Wellness Programs**

**SERVICES CATEGORIES**

**A**

Adult Day Care
Adult Day Health
Adult Day Programs, Developmental Disabilities
Adult Education
Adult Protective Intervention
Advocacy Assistance
Aging Referral Services
Aging Services Advocacy Assistance
ALS/Homes
ALS/Lou Gehrig's Disease
Alternative Living Services/Family Model
Alternative Living Services/Group Model
Alzheimer's Disease
Alzheimer's Disease Support Groups
Apartment Communities
Arbitration/Mediation
Area Agencies On Aging
Arthritis
Arthritis Support Groups
Assistive Technology Devices
Autism
Autism Support Groups

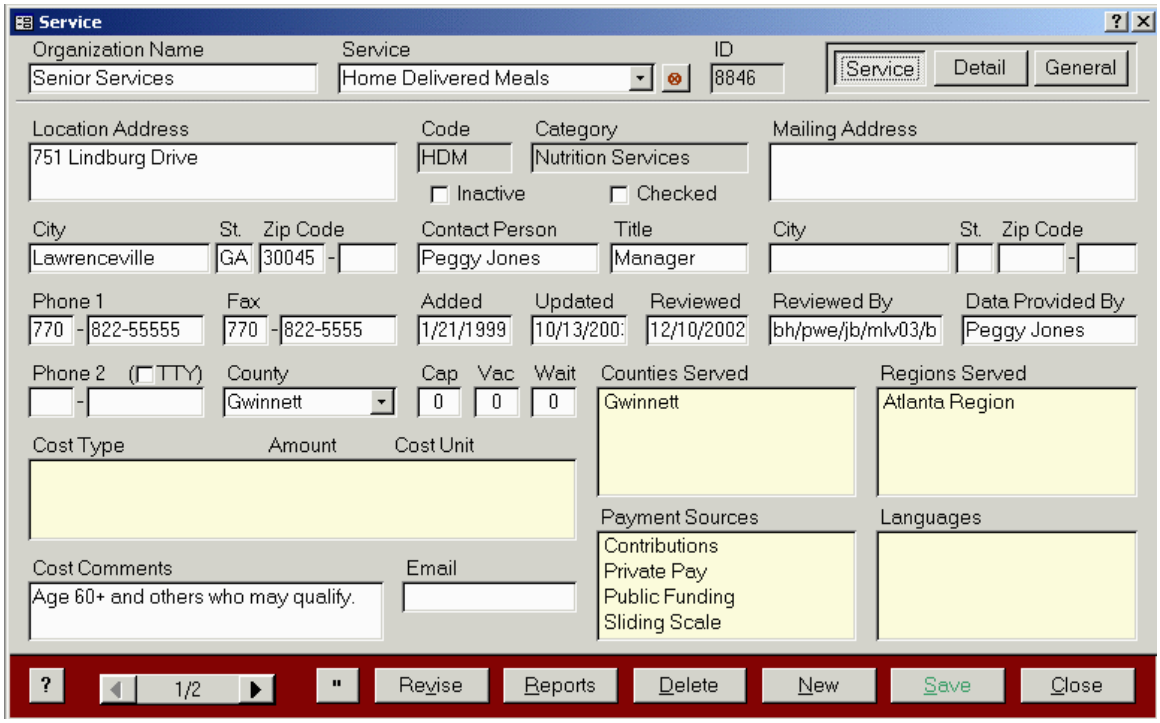
**B**

Bereavement Support Groups
Bus Fares/Discounts

**C**

Cancer
Cancer Support Groups
Care Coordination
Care Management
Caregiver Support Groups
Cerebral Palsy
Cerebral Palsy Support Groups
Chemical Dependency Support Groups
Chore Services
Citizenship Preparation
Community Care Services Program
Community Mental Health Centers
Community Habilitation & Support Services
Waiver Program
Companion/Sitter Services
Congregate Meals
Consumer Action Groups
Consumer Protection Services
Consumer Repayment Counseling
Continence Clinics
Continuing Care Retirement Communities
Counseling, Developmental Disabilities

**Figure 1-3**
**ESP Service Record**



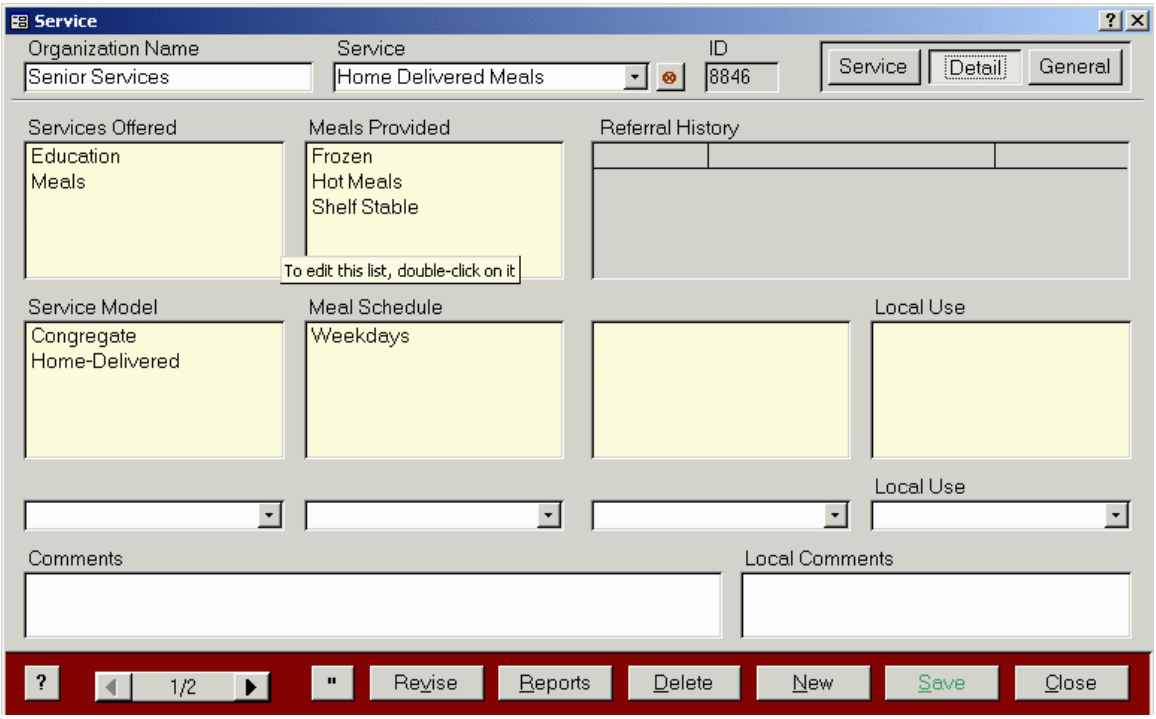
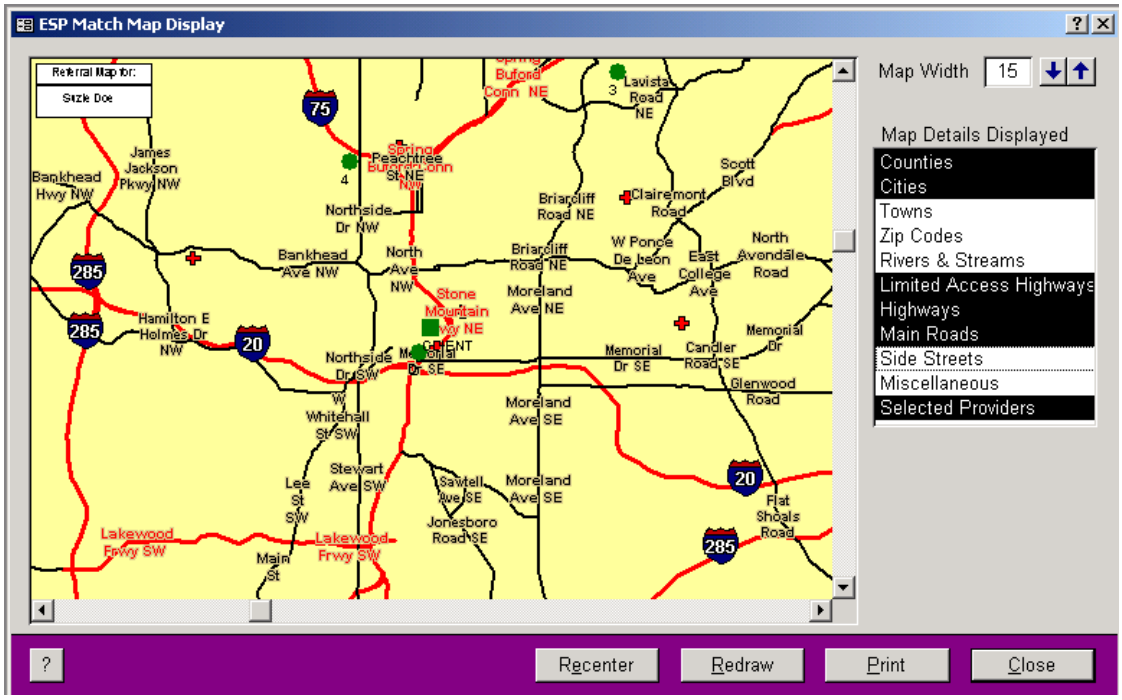



**Figure 1-4**
**ESP Mapping**

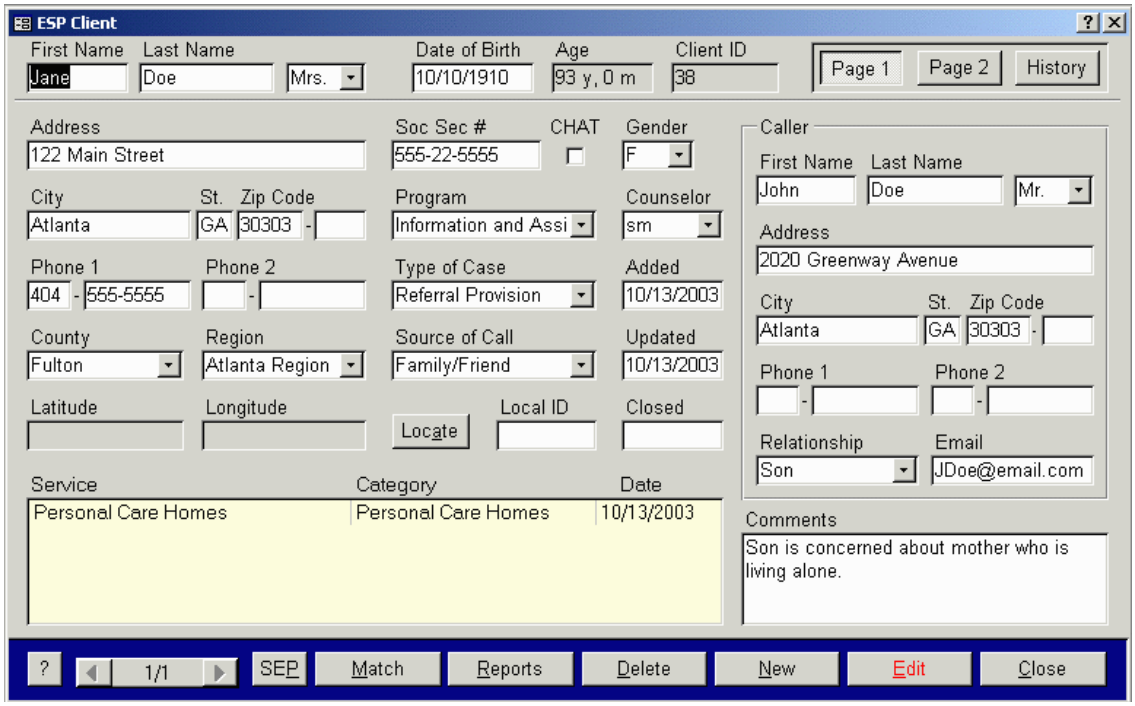


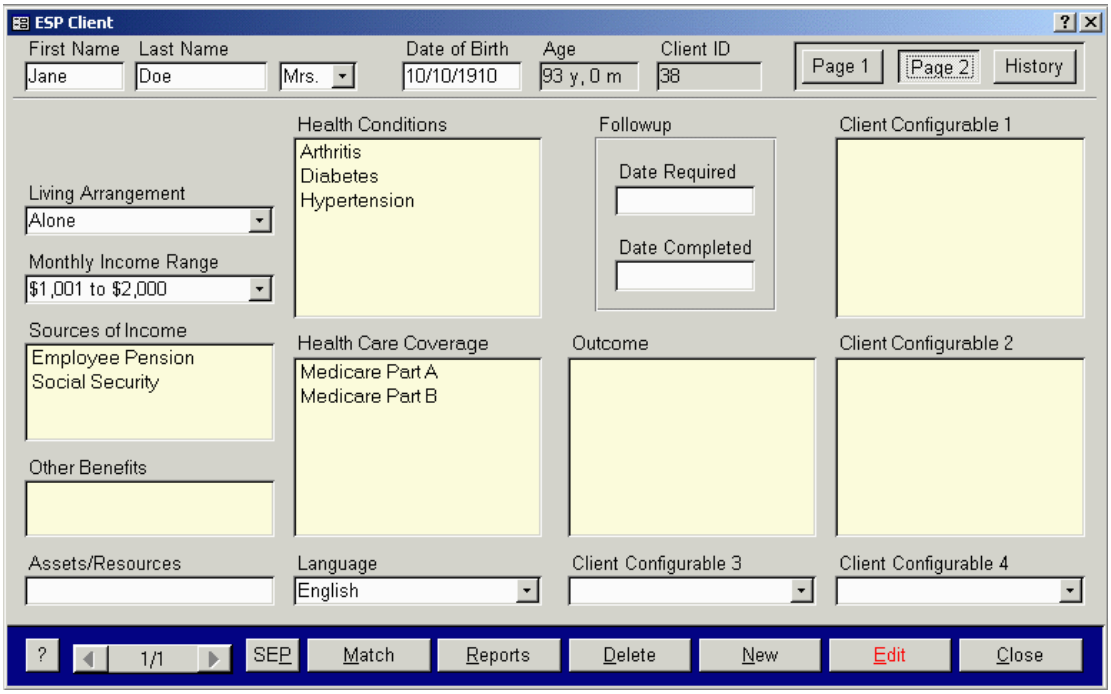

shows all the clients who were referred to each particular program, the dates that information is added, reviewed and the name of the person who provided the information. Additionally, each subscriber can add information specific to a provider in the "local use" and "comments" sections. This information can only be viewed by the subscriber who enters the information. Providers are not charged for being listed in the database but inclusion and exclusion criteria are strictly defined so that only appropriate providers are contained in the database. A provider must have a license, if applicable. ARC maintains a close relationship with all state licensing/regulatory boards and receives notifications of providers entering and exiting the market, losing accreditation, or any other major changes[2]. This allows ARC to remove providers from the database if a complaint cannot be resolved or if a provider loses a license.

***b. Information & Assistance (I&A) Client Information***: The client section of ESP tracks client calls and service referrals (***Figure 1-5***). It contains demographic information and a limited assessment of a client's personal situation. Case notes document client contacts along with time spent on each activity.

[2] In Georgia, organizations such as nursing and assisted living facilities, personal care homes, home health agencies, hospices, and home care providers need to be licensed.

**Figure 1-5**
**ESP Client Screens**



The client section of ESP contains three main screens. The first records who is calling, demographic information on the client, and an evaluation of the caregiver situation. The second screen contains information on the client including health conditions, health care coverage, and income/insurance coverage data. It also includes a reminder system to monitor outcomes and prompt follow-up calls. The final screen contains information about the materials that were sent to the individual as a result of the call and the client's referral history. Requests for services and referrals given are tracked through the matching process. The provider database can be accessed through the client database to allow searches for individual clients and electronic referrals. A "refer" button within the system allows I&A specialists to add the service to the individual's referral list at the same time they issue the referral.

**2. Client Health Assessment Tool (CHAT).** The CHAT software is a case management tool used to screen clients requesting publicly funded community-based services provided under Title III of the Older Americans Act, Social Services Block Grant, the state home care program, CCSP (Georgia's Medicaid waiver program), or SOURCE, the 1115 Medicaid Waiver Program (***Figure 1-6***). It provides a structured telephone screening instrument which is used to determine a client's eligibility for a given program, maintain waiting lists for services, and document case management activities. The CHAT system can be used for electronic referrals to ARC's case management agencies. A variety of report options and query functions are available in both the ESP and CHAT systems.

### *B. System Maintenance and Staffing*

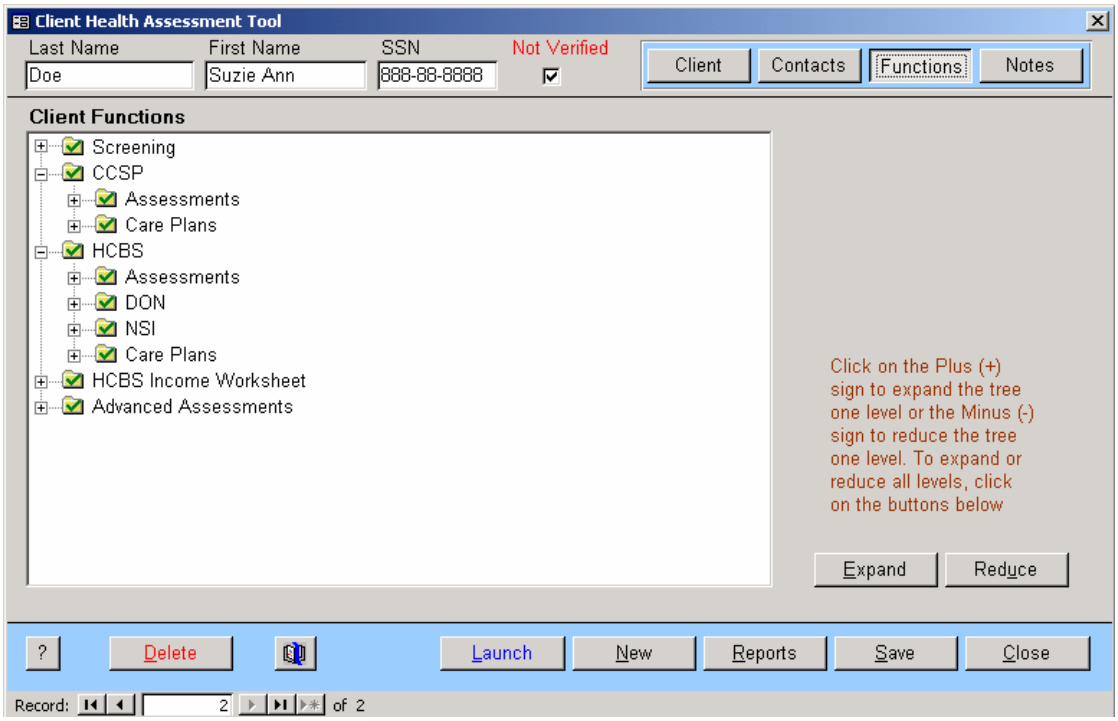
Each Georgia AAA is required to enter information about a certain core set of services for their respective regions into the database. Additional services (such as mobile veterinarians and grocery delivery) may be entered on a case-by-case basis. Data entry is performed using a data entry manual developed by ARC which standardizes wording and program entry across AAAs.

Several special staff positions at ARC have been created for data entry and updating and for managing the process. Intake and screening is conducted by both Information Specialists and by the Intake and Screening Unit of the Community Care Services division. All staff undergo extensive training to ensure that appropriate information is provided to the callers.

Currently, ARC provides Information Technology (IT) support to all subscribers to the database. However, if a non-Georgia AAA using the ESP software sells its database, they are

responsible for IT support to those with whom they contract. ARC provides initial orientation on how to navigate the system.

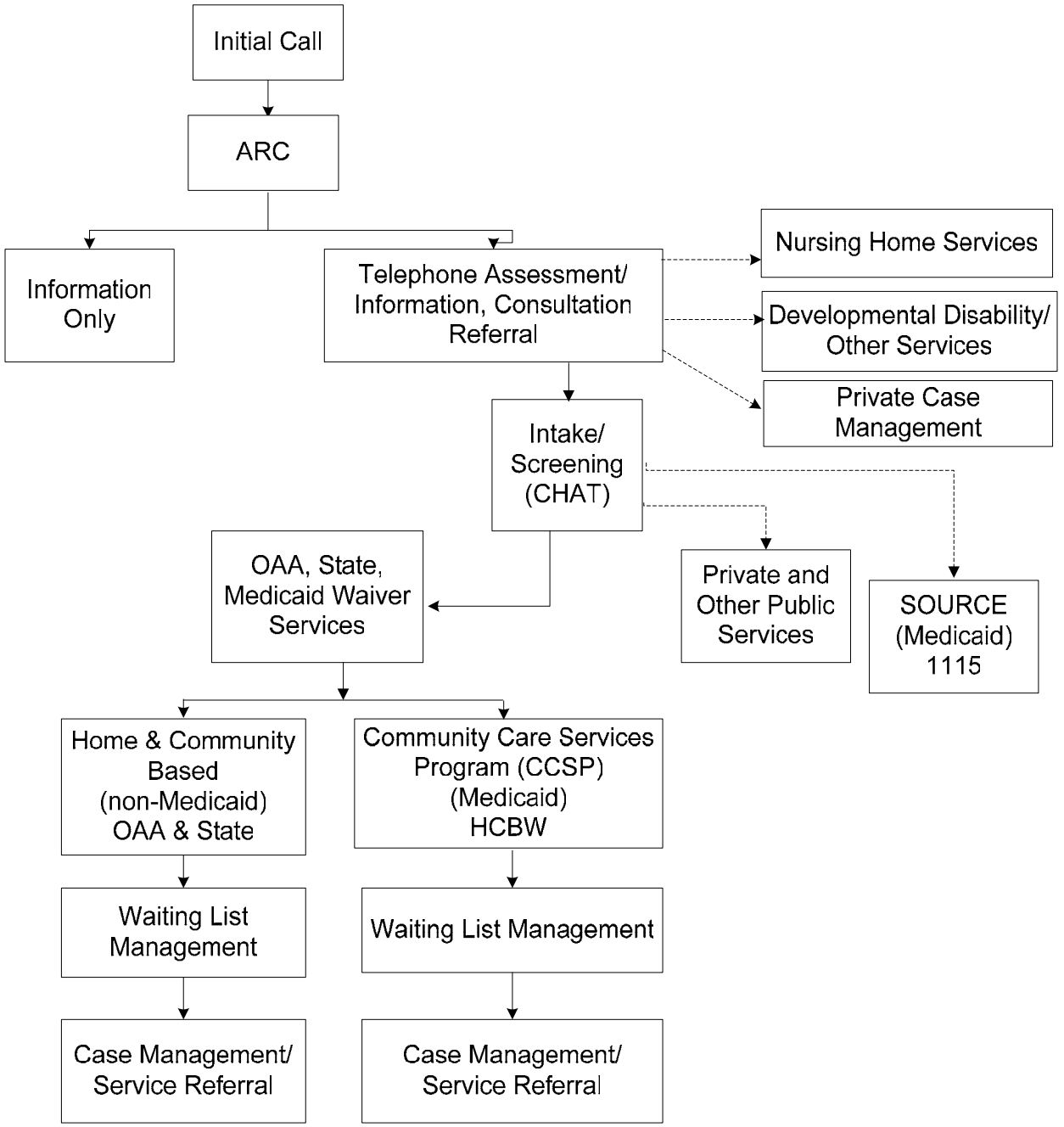
**Figure 1-6**
**CHAT Access to Main Functions**




### *C. Client Flow*

ARC receives 2,000 to 3,000 calls or more per month. Calls are answered by I&A specialists at ARC who can access the ESP/CONNECT/CHAT system from their desktop computers (see ***Figure 1-7***). Persons in need of home and community-based services including OAA-funded, state funded, and Medicaid waiver services are screened, placed on a waiting list or referred for a comprehensive assessment and case management services. When a call comes in, the operator routes them to the most appropriate I&A staff person for either information only or for assessment, consultation, and possible referral to services. The specialist will determine if a person needs a formal assessment or if they are calling simply for information. Once a client is on the line, I&A staff continue assessing client needs while searching for options. If a person requires a formal screening, the specialist will use the CHAT screening tool to determine if the individual appears to qualify for publicly funded services. If the person is not eligible, staff refer them to programs and services available for private pay and send them material about the

**Figure 1-7**
**ARC Client Flow Sheet**



services discussed. About 75 percent of all calls are referred to organizations in the private sector, the rest are referred to public programs. About 32 percent of all calls seek information about medical insurance coverage.

A more extensive assessment is done if the caller appears to qualify for public services. Information is collected on the client including identification of health problems and other services already received by the client. The specialist uses a determination of need (DON) instrument to measure the individual's level of impairment and level of unmet need, provide a score for placement on waiting lists as appropriate, and determine whether the client meets clinical criteria to qualify for nursing home (NH) placement or community-based services. CHAT can be used to screen clients for both the state HCBS and Medicaid CCSP services.

CHAT provides two assessment tools. The Minimum Data Set-Home Care (MDS-HC) is used for the Medicaid waiver program, and a shorter psycho-social assessment tool is used for the state-funded home and community-based services (non-Medicaid). In-home assessments are completed by case managers using laptops. CHAT includes triggers which identify high-risk areas and client assessment protocols (CAPs) that are used to develop care plans. The system includes a service order screen which will give the service agency information about the referral, including detailed instructions. CAPs are reviewed after 30 days and then quarterly. After a year, a new CAP assessment and care management plan review occurs. The client is asked to evaluate the services they receive, and complaint procedures are in place if needed.

The CHAT system also includes a worksheet for determining the client's share of costs for the state funded programs. Income for the state funded program is self-reported without verification.

The Medicaid financial eligibility determination is not determined by ARC staff although clients are screened for Medicare eligibility at the AAA. In Atlanta, the CCSP case managers assist the client with the Medicaid application when they do a home assessment but these are submitted to the Department of Children and Family Services for authorization. CCSP case managers only conduct clinical level-of-care eligibility determinations and initial financial screening.

The Medicaid program has a waiting list which prioritizes those most in need of support. Unfortunately, people can sometimes be on the waiting list for an extensive period of time. ARC staff provide follow up for these waitlisted clients with reassessment every 4 months until the

person is no longer on the waiting list. In the meantime, clients can be referred to other services, such as home delivered meals.

### *D. System Development*

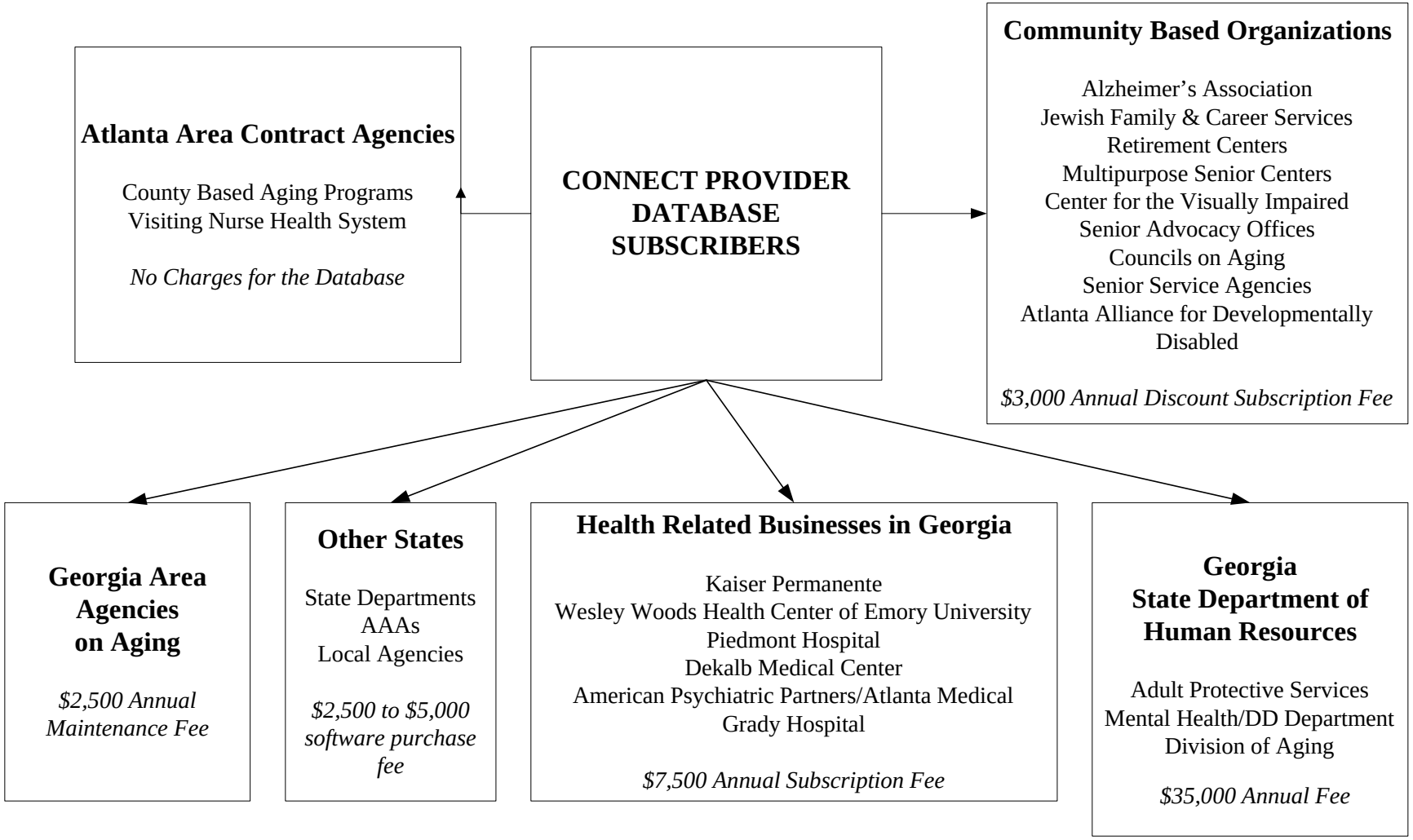
ARC's information system has been developed incrementally since 1981. In 1987, ARC was approached by Ceridian (formerly Work Family Elder Directions, a human resource IT company) to help develop a database on eldercare consultation and referral services for IBM, AT&T and other large employers. ARC built on this effort and contracted with CyberPath, Inc., to develop the Elder Service Program (ESP). The software was developed with non-federal funds from ARC. This allowed ARC to develop a self-funding mechanism based on charging users a subscription fee and using these dollars to maintain the system and develop additional components.

In 1996, ARC developed their two-tiered Aging and Long-Term Care taxonomy, using the Alliance of Information and Referral Systems (AIRS) Taxonomy of Human Services as a foundation, to standardize the search terminology for senior services. The complete taxonomy has 44 primary categories and 180+ types of services within those categories. They named the Database CONNECT and used it in the Atlanta region to identify community resources.

In 1997, the CONNECT database was marketed to other businesses and community agencies as Aging Connection Plus, and by 1998, it had gone statewide to other AAAs. Although the software was developed by CyberPath, Inc., ARC acquired exclusive rights for marketing and contracting activities. ARC pays CyberPath, Inc. a licensing fee for each software package sold but all additional funds belong to ARC and are used to cover their costs for updating the provider information and providing technical assistance to the users.

ARC developed a subscription fee schedule for the database. Fees are variable and depend on the type of agency or business subscribing (***Figure 1-8***). For example, ARC contractors, such as the county-based aging programs pay no fees; other AAAs in the state pay an annual maintenance fee which covers the cost of updating and maintaining the system. Community-based agencies that serve the low income elderly, such as the Alzheimer's Association, pay a nominal subscription fee in addition to the ESP license. Other agencies and businesses pay a higher subscription fee.

**Figure 1-8**
**Charges and Fees Structure for CONNECT Database - 2004**



ARC also developed marketing materials for other AAAs to use when implementing the system in their local area. It includes model contracting language and reference materials for developing their subscription system. It also includes a manual to help them develop the information that must be submitted to ARC for the statewide data system. Each AAA in Georgia enters their data locally and submits it weekly to ARC for quality control and weekly statewide distribution. Subscribers can enter their own notes in the system. These notes are not overwritten in the weekly update process nor are they available to other users of the system.

In 1998, ARC began developing the Client Health Assessment Tool (CHAT) in collaboration with CyberPath. This tool was intended to provide screening, in-home assessment and a care plan for the Medicaid Home and Community-Based waiver program. ARC created a special staff position for a CHAT specialist to provide telephone assistance, training, and technical support to CHAT system users including all of the Georgia AAAs.

In 1999, ARC developed a website, www.agingatlanta.com, which provides an abbreviated set of information from the CONNECT database and allows public access via the internet. In 2000, ARC developed and began marketing CHAT 2, an expanded client health assessment tool with a non-Medicaid component for OAA Title III programs. With this new component, ARC began marketing the new tool for use in case management. In 2001, the information system was expanded and enhanced to meet caregiver needs and to provide an expanded mental health database and in 2003 it was expanded to include services for the developmentally disabled. Also in 2003, the website was expanded and renamed www.agewiseconnection.com.

The information and referral service is part of the statewide Gateway to Community Resources program. In 2001, a statewide toll-free number was established in addition to local numbers to connect clients with certified I&A specialists who could provide information on aging services and programs, conduct telephone assessments, make referrals, and conduct follow-up services to determine whether inquirers obtained needed services. The state joined with local AAAs to promote the system as the "Gateway to Community Resources." In addition, the following improvements also were made over the past several years:

- Software improvements.
- Expanded taxonomy, including 44 categories and 180+ services.
- Prescription drug information for 1,600 separate drugs. ARC developed this pharmacy component working from the national list of drugs available through state

pharmacy assistance programs. The system allows separate reports to be sent to a client for each drug (availability, generic names, and various discounts available).

- Revised/added caregiver options.
- Mailed/revised cover letters.
- Email options for those requesting information.
- Mapping function added. Using ARC's Geographic Information System developed for their local planning responsibilities, ARC staff can produce maps that identify the location of the providers discussed relative to the client's residence.
- I&A hours expanded to 24/7 by collaborating with the United Way 2-1-1 system. The United Way 2-1-1 number is generally called for a wide range of financial and other resources, but aging-related calls are also taken through this number and are transferred to ARC.
- Senior Employee/Employer Component added with searchable information about employment opportunities for seniors.

Today, funding for the system comes from a variety of sources including federal and state dollars. Additional income is derived from the subscription fees paid by the business and community organizations for the provider database. ARC also charges companies needing information for business purposes. For example, they charge $10 to produce "Quick List" searches for services which includes general information about the service category and a current list of providers/facilities in the particular category or $25 for customized searches.

The system has also been purchased by a number of other states and AAAs outside of Georgia. These states or AAAs purchase technical assistance from ARC and subscribe to the ESP software which they use to compile their own resource directory database. Each state may modify the taxonomy to meet their local requirements. On average, it takes two to four years to assemble a new state or AAA database.

### *E. Keys to Success*

This integrated database allows Georgia to use one intake system to identify the range of public programs that could provide the necessary services, assess client needs and community resources using current information, and make referrals to providers that meet the specific needs of the individual client, overcoming any cultural, physical, or financial barriers by accessing an extensive, current set of information on available resources.

The Aging Connection and the ESP/CONNECT software owes much of its success to its incremental development, constant updating, and community input in developing the system. It

is widely used by agencies referring clients to ARC, providers serving clients in the community, and clients and their families seeking information on community support services.

This system is effective because it can be used by a variety of different social service organizations. These organizations use ESP and CONNECT to provide their clients information about services in the community. Some agencies also have an I&A office where seniors, caregivers and their families receive information and personal counseling. Further, ARC provides specific training to the system users to help insure effective use of the information system.

There are also a number of hospitals that use the software and database. Hospital case managers, resource specialists and nurses use the system to provide referrals for those being discharged from the hospital or accessing the senior information centers located in some of the local hospitals. Hospital staff also use the system to target mailing lists for special senior services. At one hospital, the CONNECT database is used by a designated I&A specialist to support the hospital's Aging Info Helpline.

In addition, the data system is used by faith-based organizations. The Jewish Federation of Greater Atlanta uses the CONNECT database to support their I&A program for senior services, and make it available in their assisted living, independent living and nursing home facilities. ESP and CONNNECT are also key components of their organization's NORC initiative where it is used in each community for improving service coordination. Because the system is statewide, coordinators can use it to recommend services to clients outside of the region, a feature which had not previously been possible. The Federation uses the client component of the ESP to track older adults for follow-up services and to target participant mailings.

The CONNECT system is also used at one of the Independent Living Centers, Clairmont Oaks, where a service coordinator helps clients find services. Being able to search the database by cost data is especially useful to them since they serve a low-income population. More recently, Clairmont Oaks has begun developing a resource center where residents can access the database and perform their own searches.

A key feature to CONNECT's success is that it is continually updated. While it is challenging to maintain a current, updated database, this makes it a reliable source that people trust for information. And because they are a regional government planning agency, ARC was

able to use the county organization's mapping capabilities in their database. This allowed them to provide directions, maps and locations from client's addresses to the service providers in addition to the basic information about local services.

Another critical factor in the system's success is the partnerships that have been formed between and within ARC. Their emphasis on marketing to other agencies and businesses allowed ARC to develop partnerships with other organizations that were interested in using the data system. ARC has been able to maintain and support the system using subscription fees from these partnerships. Each of these groups contribute to and use the CONNECT database which both strengthens the partnerships and the value of the database as an integrated tool.

ARC's integrated information system keeps evolving. Atlanta's system is growing to meet the needs of long-term care populations across the state, regardless of age. The data they provide is reliable, searchable, and crosses county lines making it a unique resource for helping older adults and caregivers across the state find the resources needed to help older adults age in place and remain in the community.

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## INDIANA'S INTEGRATED INFORMATION SYSTEM: IN*SITE* DATABASE

This case study highlights IN*site*, the electronic information system used by the state of Indiana to manage its long-term care programs. This system collects and tracks client information across community-based programs administered by the Division of Disability, Aging, and Rehabilitation Services (DDARS) or funded by the Office of Medicaid Planning and Policy (OMPP), two units within the Family and Social Services Administration. The database is used by the Area Agencies on Aging (AAAs), private case managers, DDARS which is the State Unit on Aging and OMPP to:

- conduct pre-admission screening for nursing homes,
- assess clients for community-based services,
- identify providers,
- manage cases, and
- track eligibility, costs and use of the state-funded CHOICE program, Medicaid waiver and state plan services, Social Service Block Grant (SSBG) services and the Older Americans Act (OAA) programs.

IN*site* consolidates client information into one record that streamlines the consumers' access to a range of services, tracks all public services they use, and provides case management references, forms, and tools to improve the consistency of services provided across the state.

The first section of this case study describes the long-term care (LTC) system in Indiana and provides context for the IN*site* administrative system. The second section focuses on the IN*site* database and describes its components, users, and development while the last section discusses Indiana's keys to success in creating and using such a system. This case study provides an example of a system developed through state-level leadership with a goal of improving program management.

### 2-I. OVERVIEW OF LONG-TERM CARE IN STATE

#### *A. Demographics*

Indiana has a population of about 6 million people, of whom 12.4 percent were 65 years or older in 2000 (Nawrocki and Gregory, 2003). Among residents who are 65 years and older, 22.9 percent had a limitation in self-care or mobility, making Indiana the fifth highest ranked

state in terms of elderly with these types of impairments. About 10.3 percent of Indiana's seniors experienced cognitive or mental limitations.

Almost 10 percent of Indiana's seniors are at or below the federal poverty level (9.6 percent). While this is lower than the national average of 10.9 percent of the elderly, Indiana has a substantial number with incomes between 101 percent and 200 percent of the poverty level (25.7 percent compared to 23.7 percent nationally). Over a quarter of the elderly (27.7 percent) live in rural areas, compared to 21.7 percent nationally. Indiana has a relatively small minority senior population, only 7.6 percent of those at least 65 years old compared to 16.4 percent nationally.

### *B. Long-Term Care Financing*

Long-term care services in Indiana are financed through multiple streams, including Medicaid (both state plan and waiver services), the Older Americans Act, the Social Service Block Grant and a substantial state home care program called Community and Home Options to Institutional Care for the Elderly and Disabled (CHOICE).

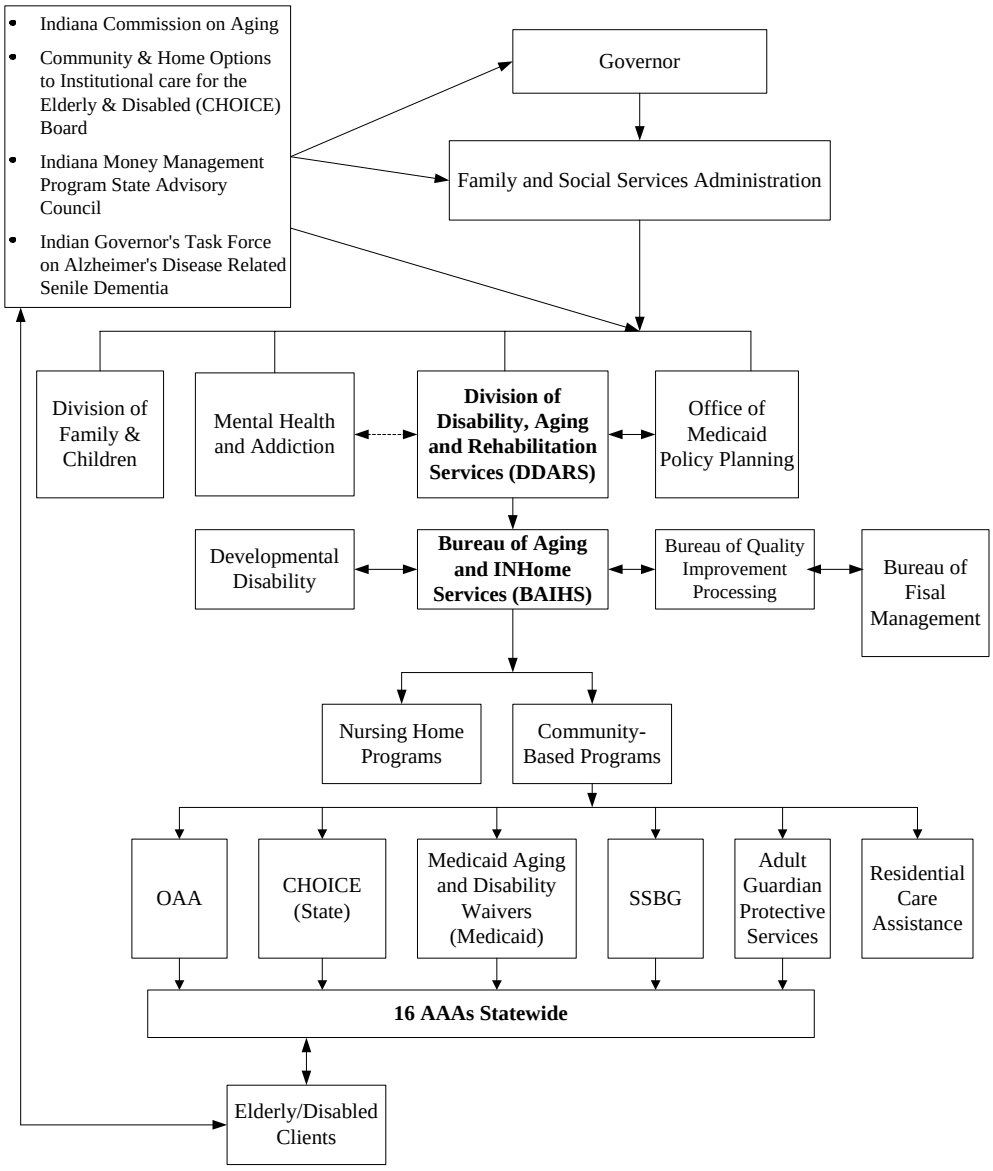
As in other states, Indiana has a substantial portion of long-term care dollars supporting nursing homes ($868.4 million in FY 2002). They received an additional $184 million in Medicaid waivers of which 11.5 percent, or $21 million, targets the aged and disabled populations. The CHOICES program contributed an additional $46 million to the long-term care funds while the Older Americans Act (OAA) provided another $22.5 million.

### *C. Long-Term Care System and the Aging Network*

Aging services in Indiana are administered by the Bureau of Aging and In-home Services (BAIHS), a unit within DDARS. BAIHS is responsible for a broad range of long-term care for people of all ages with disabilities (***Figure 2-1***). Along with the Office of Medicaid Policy and Planning, they administer both the Medicaid and state-funded community-based programs and work closely to set the waiver policies. In addition, BAIHS administers other state-funded aging and long-term care programs including adult guardianship/protective services, pre-admission screening and annual resident review for nursing home residents, Room and Board Assistance (RBA) and Assistance to Residents in County Homes (ARCH). BAIHS also administers the Older Americans Act programs providing technical assistance, funding, and

support to the 16 Area Agencies on Aging (AAAs) that serve as the single points of entry for long-term care in Indiana.

**Figure 2-1**
**Indiana's Long-Term Care System**




The IN-Home Services community-based program in BAIHS was created in 1992 to consolidate all state and federally funded long-term care services and to establish a single entry point case management program. It brought together funding from five Medicaid waiver

programs, Older Americans Act, Social Services Block Grant services, Older Hoosiers Account, and a new (at that time) state-funded program known as Community and Home Options to Institutional Care for the Elderly and Disabled (CHOICE). CHOICE provides community-based services to low-income residents who do not qualify financially for Medicaid services.[3] The program uses a sliding fee scale for people whose incomes exceed 150 percent of the poverty level (see ***Figure 2-2***).

The Medicaid aged and disabled waiver and the state CHOICE programs provide very similar services. However, they differ in a few ways. Currently only the CHOICE program has a consumer-directed option where clients can hire, fire, and manage their personal care assistants without using an agency. Because of the popularity of this approach, Indiana is submitting a request for a consumer-directed option in the Medicaid waiver program. It is expected that by the end of 2004, both the CHOICE and the waiver program will be providing virtually the same services to clients.

BAIHS also manages access to nursing homes since the AAAs determine functional eligibility for all long-term care services. A single uniform assessment tool is used for all nursing home pre-admission screening (regardless of financial status) and publicly-funded community-based services applicants. The assessment tool is also used in the Medicaid nursing home diversion program which redirects clients to home and community-based care, as appropriate, upon their discharge from a hospital. Use of a single tool to determine eligibility across all services is intended to increase consumer awareness of community-based options.

## 2-II. INNOVATION OVERVIEW: IN*SITE*

The IN-Home Services Program accounts for over $200 million of the Bureau's overall budget of $263.6 million. It is managed through an electronic data system called IN*site*. This system was developed specifically for the IN-Home Services Program in the early 1990s and is currently in its 2nd generation.

### *A. System Description*

IN*site* is used by the AAAs, case managers, and state offices for managing all facets of the IN-Home services program. It provides a consolidated database on nursing home (NH) and

[3] Indiana's Medicaid state plan services do not include a personal care benefit.

## Figure 2-2
## Indiana Medicaid and State-Funded Home and Community Services Program

| | **Aged/Disabled (A/D) Medicaid Waiver** | **Community and Hope Options to Institutional Care for the Elderly (CHOICE)** |
|---|---|---|
| Year program started | 1984 | 1987 |
| Administrative responsibility | Family and Social Services Administration (FSSA) at state level and Area Agencies on Aging (AAAs) at local level. | FSSA at state level, AAAs are single point of entry at local level. |
| Functional eligibility | People must have difficulty with 3 of 14 ADLs and IADLs. | People must be unable to perform 2 of 14 ADLs and IADLs. CHOICE is funding of last resort after Medicaid. |
| Financial eligibility | People must be categorically needy or have countable incomes below 100% of poverty. Indiana is a 209(b) state with an asset test of $1,500. Spousal impoverishment protections. | Sliding fee scale that requires persons with countable income at or above 351 percent of poverty to pay the full cost of services. |
| Number of beneficiaries | SFY2003: A/D waiver 4,400 served. | SFY2003: 11,272 served. |
| Funding source | Medicaid | State funds |
| Expenditures (FY02) | SFY2003: $28 million | SFY2003: $31.5 million |
| Covered services | Case management, homemaker, attendant care, respite, home modifications, adaptive aids and devices, adult day care, home delivered meals, assisted living, community transition services, nutritional supplements, pest control PERS, specialized medical equipment and supplies, and transportation. | Case management, home health supplies and services, attendant care, homemaker, respite, meals, adult day care, transportation, other necessary services. |
| Consumer-direction | None | Very limited. Each AAA must set up consumer-direction pilot programs. |
| Cost containment mechanisms | The Bureau of Aging and In-Home Services in FSSA reviews plans of care for cost-effectiveness.<br>No caps on waiver services, with reimbursement rates ranging from $8 an hour for a homemaker to $30 for an RN. | Cost-sharing for services based on a sliding fee scale.<br><br>Providers have to competitively bid for CHOICE contracts with AAAs.<br><br>CHOICE had a waiting list of 5,561 people in January 1999. |
| Quality assurance mechanisms | Case managers must review plans of care quarterly. The Dept. of Health annually surveys home health agencies. A random sample of at least 10% of participants completes a consumer satisfaction survey. | Case manager must have regular contact with beneficiary, with 90 days of implementation of care plan and periodically as agreed upon with beneficiary. Case managers visit participants in their homes annually. |

community-based assessments, certified providers, case management information that can be shared electronically, and allows for tracking eligibility, costs, and use of the state-funded CHOICE program, Medicaid waivers, Medicaid state plan services, SSBG, and Older American Act funded services.

IN*site* is intended to help standardize the types of long-term care options clients are offered across the state and streamline paperwork by using one set of electronic forms, readily available and up-to-date manuals, and trained staff who can access their clients' records and submit information electronically for authorizations, referrals, and other case management functions. It is used to manage a broad array of services for older adults and individuals with disabilities, across the various funding programs, including:

- Information and assistance
- Pre-admission screening for nursing home placement
- Comprehensive assessment
- Care planning
- Case management
- Home health
- Homemaker
- Attendant care
- Respite care
- Adult day services
- Transportation
- Home delivered meals
- Habilitation
- Therapies
- Other appropriate services such as minor home modifications and adaptive aids

Client data are stored locally and submitted to the state. If a client moves to a geographic area covered by another AAA, their file is transferred to the case managers in the new location. The data are not accessible across AAA service areas.

### *B. System Features*

Figure 2-3 gives an overview of the types of files managed by the IN*site* system. Case managers and program administrators have one electronic "file drawer" containing information on client processing, information and referral services, financial records, including Medicaid billing, NAPIS records for the Administration on Aging, a provider

database to select appropriate providers. In general, this information can be grouped into four major functional areas which complement each other in terms of their use:

- Client case management information, including tracking clients' use of I& R services, other OAA services, Medicaid waiver information and quality survey data
- Reference materials, including policy manuals and standardized forms
- Built in management tools, such as 90 day review reminders and "hot lists"
- Provider data, including certification and billing forms with basic service information

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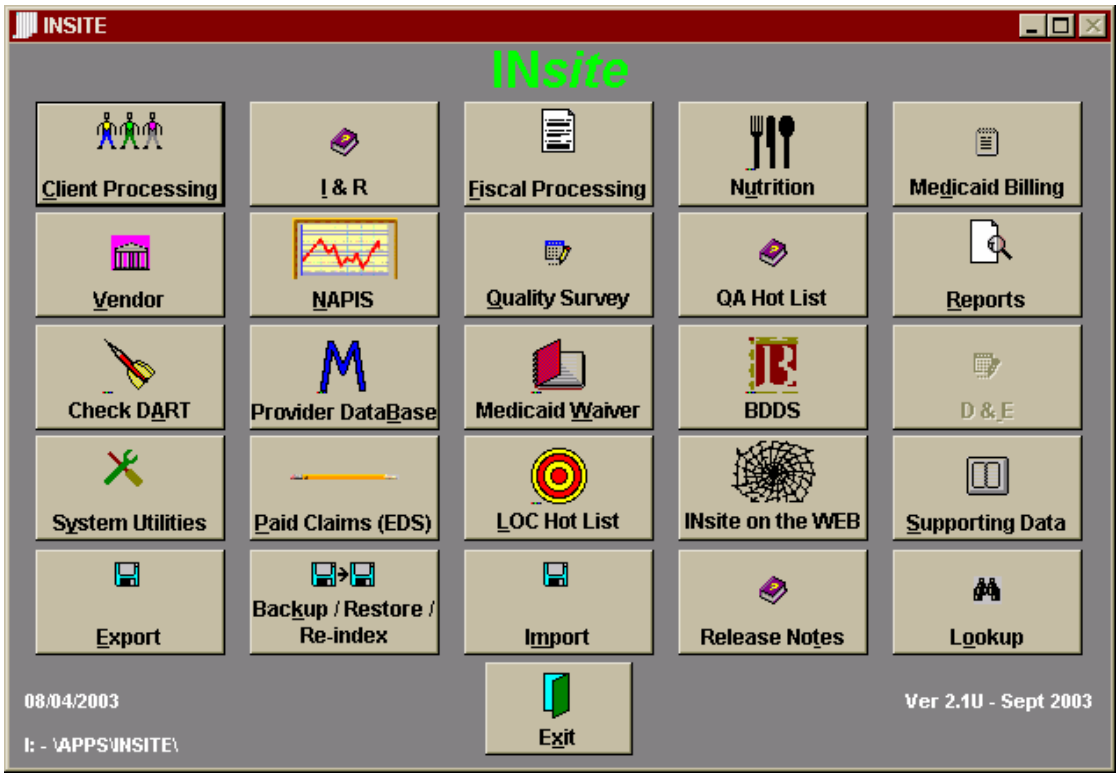
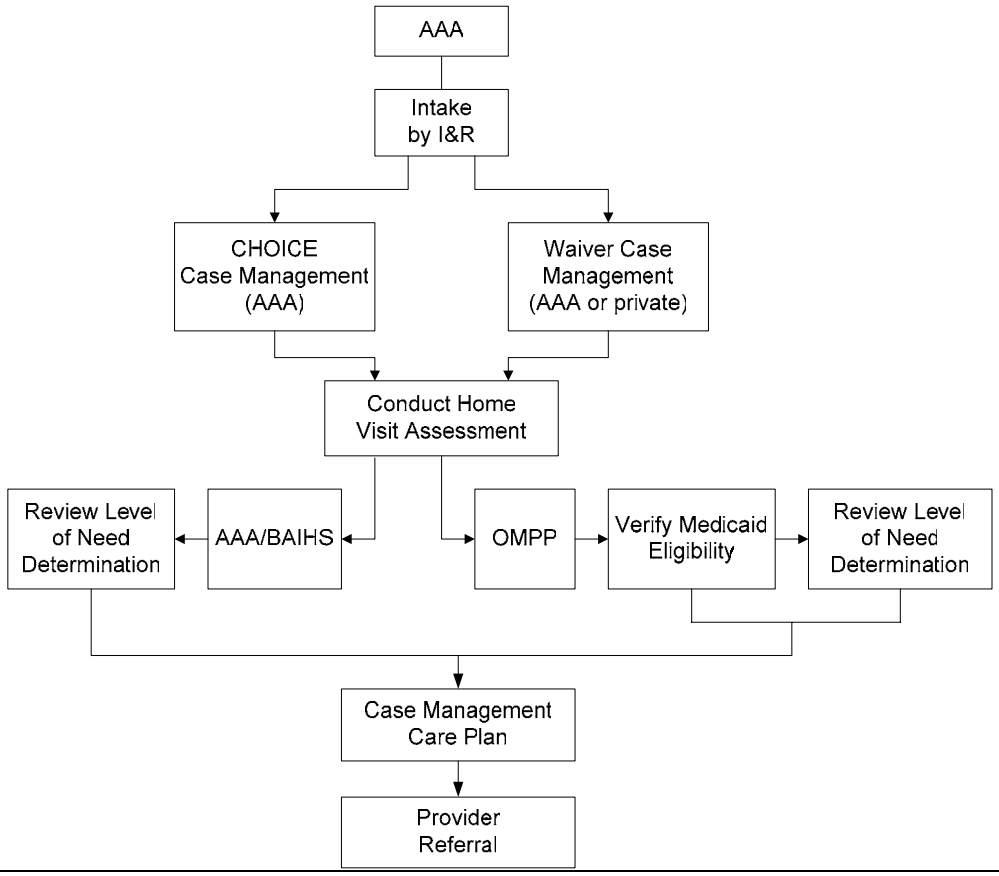
**Figure 2-3**
**Main Menu: Overview of IN*site* Folders**




**Client Case Management**. Individuals access community-based services in Indiana by telephoning one of the 16 AAA offices through either a local number or a toll-free number that directs the call to the local AAA. When a call comes in, the AAA information and referral specialist conducts the intake assessment and identifies the most appropriate service and funding options, which may vary depending on the availability of CHOICE funds and waiver slots (***Figure 2-4***). After entering the initial intake information

into the IN*site* system, they refer the client to a case manager who may be employed either by the AAA, or for waiver clients, may also be a private case manager or case management agency. The referral is made electronically and the case manager then contacts the client to set up a home visit. Both types of case managers will use the IN*site* system to manage the case.

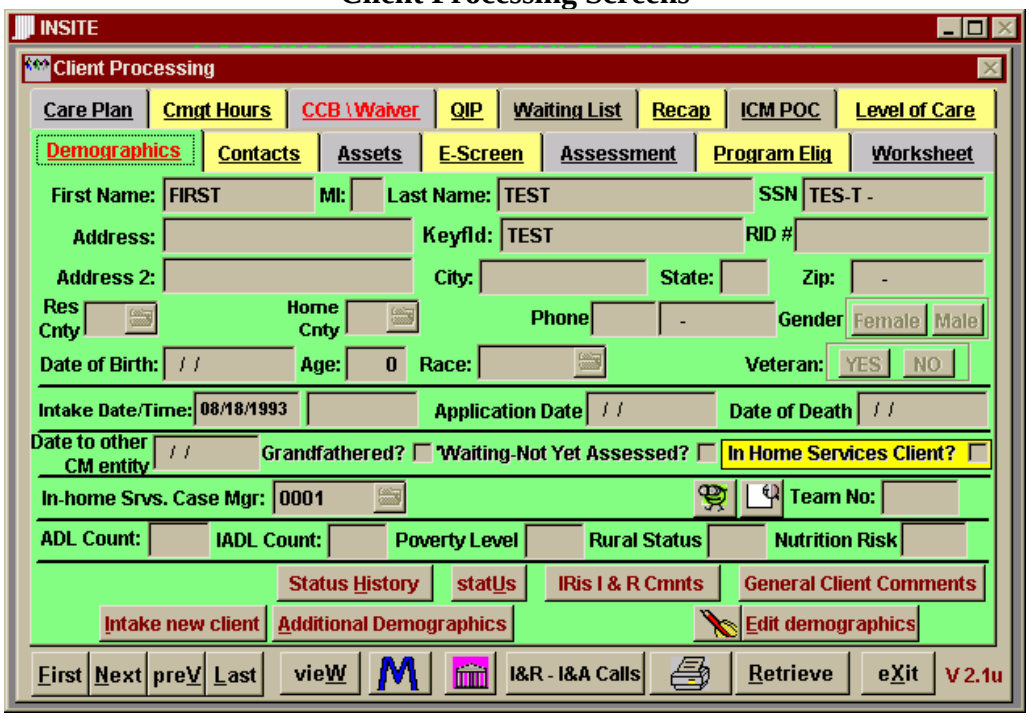
**Figure 2-4**
**Client Flow Chart**



The case manager then visits the client at home and conducts the assessment. Using laptop computers, they can enter the following types of data on each client directly into the IN*site* system (see ***Figure 2-5***):

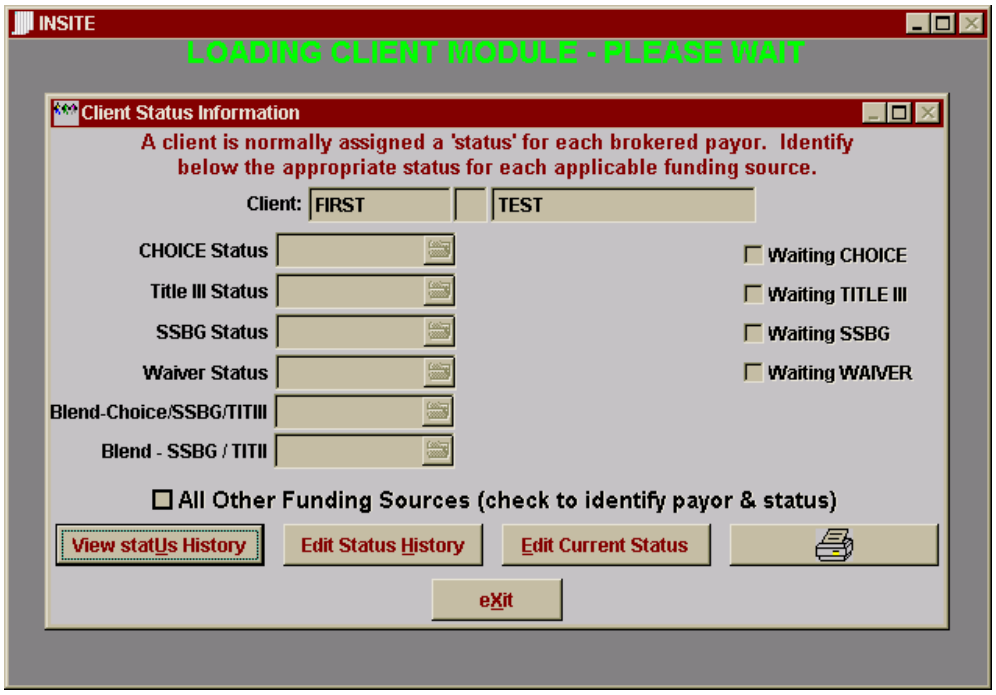
- Demographics
- Functional assessments
- Level of care determination
- Family and community support systems
- Limitations of ADLs and IADLs
- Nutrition risk assessment
- Consumer goals
- Planned services
- Cost/Frequency of services authorized
- Funding sources
- Initiation and stop dates
- Quality assurance measures
- Case notes

**Figure 2-5**
**Client Processing Screens**




The data entry is menu driven allowing the case manager to be given automatic screens for completing the information needed to qualify and authorize services under the different funding streams as well as identify wait lists for each program (***Figure 2-6***).

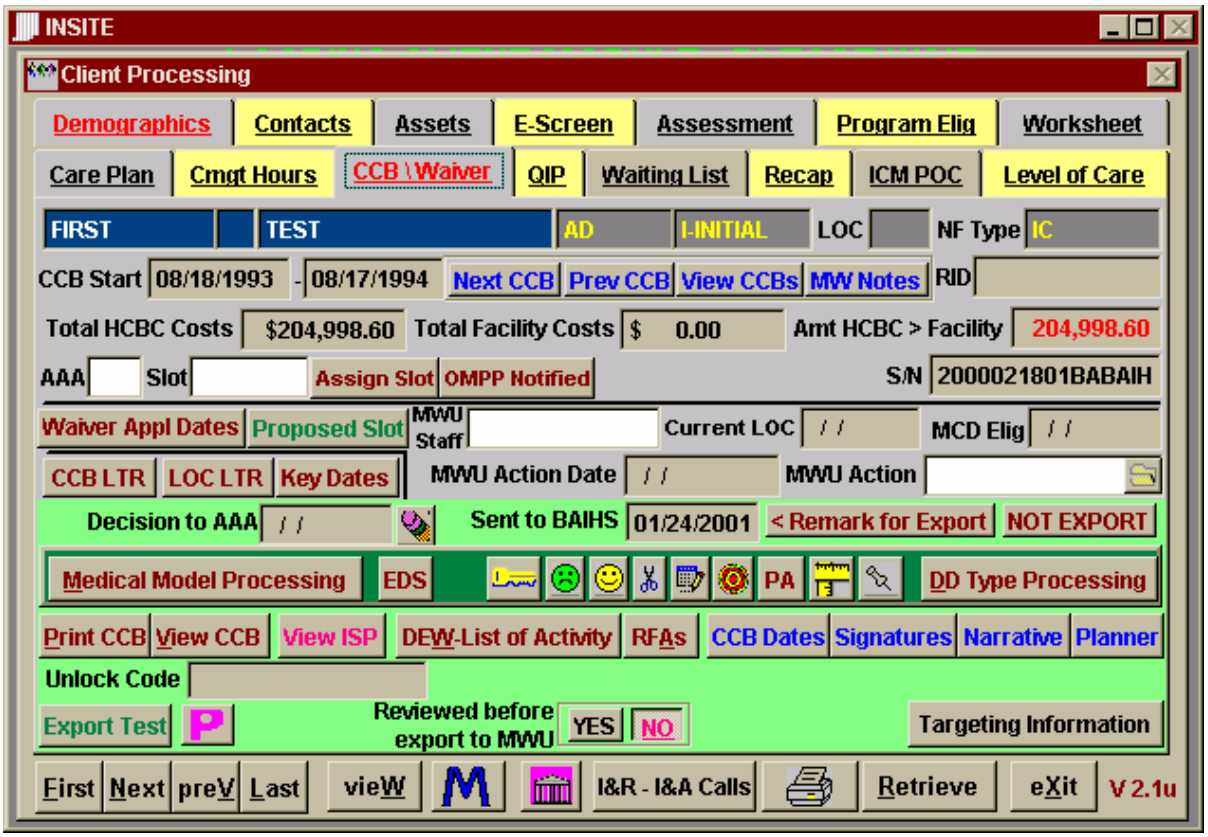
**Figure 2-6**
**Client Status Screens**




After the case manager completes the record, the data are exported to the AAA where the team or supervisor reviews the level of need determination. For clients seeking waiver services, applicants must need a nursing home level of care. The AAA will transmit the necessary information to the Medicaid OMPP for authorization if appropriate. IN*site* will be used to verify the client's Medicaid eligibility and to complete a budget which compares the client's expected HCBW costs to expected nursing home costs (***Figure 2-7***).[4] The level of need in the care plan is reviewed by OMPP. BAIHS reviews the plan for appropriate services and cost-effectiveness of care. (Information that is not available for electronic review, such as some case notes and certain care plans can be requested and emailed directly to the state).

[4] Client costs for home and community-based services in the waiver programs cannot exceed expected nursing home costs.

**Figure 2-7**
**Client Eligibility Screens**



The database is also used to electronically issue referrals. The email component allows the case managers to email the respective providers to initiate services. Only participating providers are included in the database. Having provider data in the same system as the case management data allows the case manager to search and select the most appropriate provider. Providers can be searched on their location, costs, and program participation. The system is also used throughout the year to monitor cases, oversee quality of care, and develop and modify care plans.

**Reference Manuals and Forms.** IN*site* also has a section that maintains up-to-date program manuals, memorandums, and forms that must be completed under the various program categories. This allows the case manager to have a readily available reference tool for determining whether clients meet various levels of need criteria, financial standards, or for other questions that arise during the year.

**Case Management Tools.** In addition to being a centralized repository of client data and a reference tool for having up-to-date forms and manuals, IN*site* also was designed to help case managers stay up-to-date with each case. The IN*site* system automatically generates several types of reminders or other case management tools. "Hot lists" are one type of tool where, based on program rules, IN*site* will automatically flag cases in need of immediate attention by the case manager. For example, waiver cases are supposed to be reviewed every 90 days and annually. When a client is reaching one of these points in their case, the system notifies the case manager of the impending deadline. Similar triggers are in the system for cases being discharged from hospitals and changes in waiver waiting lists, to name a few circumstances.

**Provider Data.** IN*site* also has a Medicaid provider information section which was created as a resource for case managers to search and identify certified providers for different types of services and in different geographic areas. The case manager has access to the database and can make referrals based on a "pick list" of providers in the client's area. For example, case managers can use a query function to generate lists of certified providers according to specialty and geographic location. These lists can be compiled both randomly and alphabetically to select a referral. A note section is included in the database to allow comments regarding a particular provider. Providers can be sorted by waiver to see which providers are serving waiver clients.

For inclusion, providers must be certified for both the Medicaid waiver and CHOICE program. CHOICE providers must be certified by the Medicaid program before they can serve clients in the state program. Recertification for the CHOICE program is required every 2 years. If a provider's certification status changes so that they no longer qualify for participation in the Indiana programs, they will automatically be removed from the database. This prevents case managers from referring clients to inappropriate providers.

IN*site* is also used for provider billing purposes. For Medicaid waiver services, the provider sends their bills by modem to the state's fiscal contractor, Electronic Data Systems Corporation (EDS). EDS uses the IN*site* system to check service authorizations. They then pay or deny the claims using the IN*site* database. For CHOICE services, the provider sends the bill to the AAA where the bill is compared to the care plan. If they differ, the bill is sent to the case manager who notifies the fiscal office of the appropriate allowed amount. CHOICE invoices are paid within 2 weeks and the AAA staff audit the provider records every 18-24 months.

Having one integrated database for case management, provider certification, and provider billing allows the state to check bills against client care plans and provider certification lists. As a result, bills are only paid if the service is authorized in the client care plan and provided by a certified provider.

**Reports and Other Tools.** IN*site* is used by Family and Social Service Administration for both state and federal reporting requirements, quality monitoring and assurance, fiscal management, state policy analysis, LTC service planning, and provider certification. They also use it to provide the state legislature with program planning information and to develop new initiatives, such as the NH diversion, consumer-directed options, and assisted living facility policies.

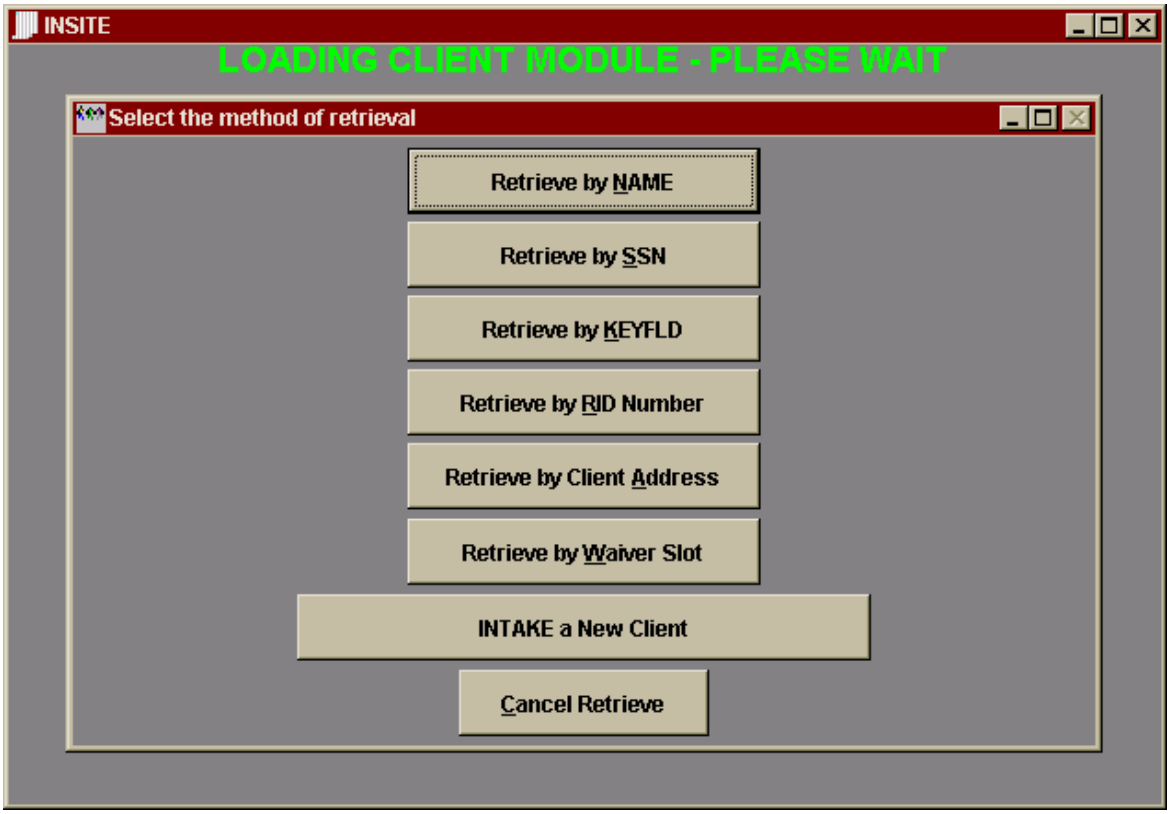
The State generates approximately 150 different reports using the IN*site* data. Examples include:

- Waiting list monitoring: reports on the numbers of prospective clients on waiting lists, including identifying which types of programs and services clients are waiting for and how long they have been on the waiting lists.
- Expenditures by service.
- Distribution of clients by geographic location.
- Top 10 services used.
- Top 10 most costly services.

- Eligibility and level of care analysis, sorted by waiver.

The IN*site* database can produce many types of reports. Basically, the system can be sorted by any of the variables in the database. In the demographics section, a field displays whether the client is on a waiting list for a service and if so, how long they have been on the list. Another type of report can display the number of prospective clients on waiting lists, as well as data on the distribution of clients by geographical location. Information is also available on the total dollars spent by service, on the top 10 services used, and on the top 10 most costly services. This information can be sorted by program type, dates, geographic areas, client demographics. Eligibility and level of care analysis can also be conducted for each waiver program and different geographic areas (***Figure 2-8***).

**Figure 2-8**
**Data Retrieval Screens**




The database can also be used for program reporting. For example, on the client level, one can track the number of case management hours and the number and types of services a client has used. This is useful for both federal reporting requirements in the waiver program and state planning efforts in the legislature and executive departments. These data can be used to evaluate the relative costs of each program. Service determinations can also be sorted by case

managers, geography, and client characteristics as a means of monitoring quality and equity across the state.

Furthermore, because the information is stored electronically, it streamlines the recordkeeping on clients, allowing one set of records to be maintained across all public programs. This provides planning information to help understand the types of services needed in the state to keep clients in the community and where they are accessing these services. The database has been useful in creating a single, electronic client record which enables a more efficient exchange of information and which should lead to better care for the clients.

### *C. System Development*

The IN*site* system has grown since the early 1990s. The state developed the system internally as a means of establishing single entry points through the AAAs and to begin integrating funding streams for client services. As demand grew, the state contracted with Roeing Corporation, a major computer technology firm based in Indiana, to provide computer support.

The system was intended to manage all components of the community-based program, including eligibility determination, service authorization, billing authorization, quality monitoring, and act as an up-to-date reference tool. It was developed with input from several parties, including the FSSA offices that initiated its development. It also received input from EDS, which is Indiana's fiscal agent for Medicaid services. EDS advised the state on developing the electronic billing authorization system so that bills could be electronically submitted to EDS by the providers, checked against the care plan, and sent on to the appropriate office in FSSA for payment. The state university also assisted in developing quality assurance tools. Strong working relationships between the Aging and Medicaid Divisions within the Department of Family and Social Services also contributed to developing an innovative and useful data management system.

Technical support and database maintenance continue to be largely provided under contract with the Roeing Corporation, although the Aging Bureau has staff designated to assist AAAs and private case management agencies with less technical questions. Case management organizations can also independently purchase technical support from Roeing. In 2001, the state mandated that all case managers, including the independent case managers, use the IN*site* database to submit their paperwork instead of paper assessments. As a result, the volume of

IN*site* users and the cost of the Roeing contract increased substantially. To contain state costs, the state is gradually providing less direct technical support.

Financing for IN*site* is determined through the state budget process. Data collection and management costs are shared through several state, federal, and local sources, including the Community and Home Options to Institutional Care for the Elderly and Disabled (CHOICE) Program, Title III of the Older Americans Act, and the Social Services Block Grant (SSBG). Other sources include the Older Hoosiers Account, seven Home and Community-Based Medicaid waivers, and local and private funds that provide additional resources for specific services to the elderly and disabled. Lottery and casino boat money is also used to fund an AAA staff person. This staff member helps with the information and referral services for clients who do not qualify for CHOICES or Medicaid services. For example, case managers might refer these clients for energy assistance, food banks, clothing, voluntary transportation or any of the OAA-funded services.

### *D. Keys to Success*

The IN*site* system established statewide electronic resources to manage their community-based clients. This system standardized information and made administration of these services much more efficient. Clients could be tracked, referrals submitted, and bills paid using this system. It also ensured that provider lists and program forms were up-to-date.

According to Indiana stakeholders, the data management system could not have worked without the cooperation of all the relevant government agencies and providers in the planning and implementation process. The Aging and Medicaid units developed a strong working relationship in order to create a cohesive system. The data in the system then had to be standardized for ease and efficiency. The variety of reports available and features such as “hot lists” save time for case managers and the state, and ensure that the state meets all program requirements. This, in turn, improves client tracking as well as services. Also, having one centralized repository for clients using multiple services reduces the need for redundant data entry and creates a more efficient delivery system.

Another key step Indiana took was the use of automatic edits or flags to enhance quality assurance, capture necessary information, and improve appropriate client channeling. This reduced error and variability introduced by human transactions. Local agencies across the state continually work to identify new ways to upgrade the system for the future. Some potential

innovations being considered include the development of a data warehouse and possible links to the Adult and Child Protective Service Systems.

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## CONCLUSIONS

Atlanta's CONNECT database and Indiana's IN*site* database are two examples of how the Aging Network is facilitating access to community-based services by consolidating client and provider resources into one electronic system. These systems are reducing redundancies across programs in administrative information management and improving the client's service coordination. By having one electronic record, case managers can oversee all the various community-based benefits used by one person.

The two systems differ in their development, uses, and costs. Atlanta's system was developed incrementally. It began as a resource directory for the AAA's information and assistance services and evolved into a local service directory used by many in the community – from hospital discharge planners to human resource offices in local businesses to local seniors seeking web-based service information – and evolved further into a case management tool for the case managers at the AAA to track referrals, identify client needs, and eventually exchange case notes. It was created through a small contract with an individual software development company which continues to work with ARC to modify the system as it expands to include more populations, services, and locations.

Indiana's system, on the other hand, began as a case management tool for the state. It was originally developed by state staff trying to track program activities but evolved into a sophisticated system developed under contract to a private corporation, the Roeing Corporation. This system is designed to "remind" case managers when clients are approaching review periods or other program activities are expected to occur. The data in this system are locally managed and are not shared across AAA regions. Indiana's system is also designed to manage provider billing under the Medicaid program. Bills are submitted through IN*site* and checked against client care plans before being submitted to the state for payment. All of this occurs electronically.

Both systems are leaders in this field. Together, they contribute two different models of improving access to and management of home and community-based services through better information exchange.

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